E-Learning Emergence

Dr Ram Kumar & Ashwani Kush

Abstract

The advancement of computers and networking has provided and is providing a new means to support learning in a more personalized, flexible, portable and on demand. In last decade the commercialization has occurred in the field of education, and knowledge–based economy has increased a lot. The innovative and new ways of delivering education have surfaced causing some dramatic changes in learning technology and organisations. E-learning or electronic learning is one such process that is gaining momentum at a very fast pace. In this paper analysis has been done to find the positive and negative impacts of e-learning. The days of the traditional classroom are far from over; e-learning is going to become a powerful supplement to traditional teaching methods, not replace it entirely.

1. INTRODUCTION

Learning process is said to be performed via two mediums described as 'active' and 'passive'. In active medium student and teacher/author are in direct contact, best example is class room teaching. In passive medium student and teacher/author are not in direct contact, it is like studying through the books. More emphasis has been given on active learning and from time immemorial it has been considered the best medium of learning. Two important processes involved in learning process are 'Law of Effect' and 'S-R Theory'. Law of effect says that if you do something with pleasure, you would like to repeat it and things done forcefully may not be repeated. So learning process should be done by pleasure.

The S-R theory, called Stimulus-Response theory, deals with providing the stimulus (hint) to get the response (result). This technique was initially more used for animals learning but is equally helpful in all learning processes. There has been tremendous research on new teaching methods to make learning process easier, more effective and better. One

acceptable solution among all theories is the use of computer. Learning via computers is also termed as CAI and ICAI, where CAI stand for Computer Assisted Instructions and ICAI stands for Intelligent Computer Assisted Instruction. Here computer is used as an aid to help teachers for better presentation of study material and carrying out analysis work of students' performance.

2. E-LEARNING

In last decade the commercialization has occurred in the field of education, knowledge–based economy has increased a lot. The innovative and new ways of delivering education have surfaced causing some dramatic changes in learning technology and organisations. The advancement of computers and networking has provided and is providing new means to support learning in a more personalized, flexible, portable and on demand. These changes are leading to a new era of learning called e-learning. [1]

In e-learning, also called electronic learning, computer acts as a teacher and more or less replaces teacher in a class room

scenario. Though the process requires the expertise of many teachers together, but for a student it is the computer system which acts as a teacher for all purposes.

More specifically e-learning is supposed to increase the rate of learning for the student around 20% to 50%. The reason is because the courses are more streamlined and focussed than traditional classroom settings. Online courses allow students to work at their own pace, faster students are not held back and slower students can work along at their own pace. Need of the hour is for the corporations, government organisations and educational institutions to adopt e-learning phenomenon and make strategies to adopt e-learning techniques. The research has shown that new inventions in computer science like multimedia technologies and high speed internet have changed the way the knowledge is delivered and e-learning is becoming a real alternative to traditional class room teaching. It offers students and institutions greater flexibility and access to off-site courses, workshops, research, professors, and speakers. The projector can show a computer slide show simultaneously at different locations. At any time, students can ask questions or engage in discussion, making the classes quite interactive. Many students don't ask questions or ask for repetition in the class room even when they have some difficulty, in contrast to this in e-learning a student can select a particular portion of lecture to review until it is fully clear.

The components of e-learning are:

¤ Contents

Contents describe what is exactly available in terms of course nomenclature.

¤ Chapter

Chapter gives summary of the chapter to be presented with references to previous chapters and chapters ahead.

¤ Virtual teacher

Virtual teacher is the study material presentations for specific questions, quotes and answers to FAQs (frequently asked questions) just like teacher does in a class room environment.

¤ Multimedia presentation

Multimedia presentations make the most important ingredient in e-learning; this part actually gives the power of the presentations. It is very important to prepare this portion as the basis of learning depends a lot on multimedia presentations.

¤ Questionnaire

Questionnaire takes care of exercises. It is important to check questionnaire for different types of answers like 'Correct but misspelled answers', 'Wrong answers', 'Null entries', 'No replies', 'Delayed responses', 'Unanticipated answers,' etc.

¤ Certification

Another important feature for learner point of view is the certification with authentic validity. In most of the cases care is taken for credit transfer facility.

¤ Security

In modern e-learning a major threat to the course is security hazards. All care is taken to keep the material in secured position and also to take care of student identification and authorization.

¤ Administrative issues

Administrative Issues takes care of course information, registration, assistance library resource, etc.

Methodology, delivery and support on the online courses are provided as:

❑ Online course from the parent institution/ university

❑ Face-to-face support

❑ Printed study guides and text books

❑ Audio and video aids including CD-ROMS

❑ Video and audio conferencing

❑ Links to library facilities

❑ Online tutor support

❑ Network with a world-wide student body.

2.1 Advantages of E-Learning

Student living in the suburbs might opt to attend class through a webcam from home rather than commuting for an hour to an institute location. The same option could exist for somebody with a physical disability. It can also let the universities tap into international experts that might otherwise be inaccessible. Professors could conceivably be shared in an inter-university environment, freeing up knowledge resources, reducing travel time and expense, and even alleviating the need for classroom space. Some major advantages are:

(a) Self paced

(b) Time and location flexible

(c) Cost effective

(d) Global teaching phenomenon

(e) Large knowledge domain to choose

(f) Life time learning options

(g) More streamlined and focussed

(h) Diversified field to select from

(i) Sharing of knowledge is easier

(j) Labour savings: Save in training salaries

(k) Access to large amounts of information can be obtained at low incremental cost

(l) Enhance academic productivity

(m) Systematic.

2.2 Disadvantages of E-Learning

(a) Not immediate feedback

(b) More load for faculty to prepare instructions

(c) Infrastructure requirements

(d) More confusion due to lack of direct interaction

(e) Requires more maturity and self discipline

(f) Drop out rates are more; a lonely way to study

(g) Not all aspects of training can be covered using e-learning techniques, e.g. disciplines

(h) Lack of social impact of peer group in learning and personal development

3. INDIAN PERSPECTIVE OF E-LEARNING

There are various reasons for the increased growth of e-learning in India. In terms of the overall size of main telephone lines in operation, the country rose from 14th rank in the world in 1995 to 7th in 2004.[6,7] Cellular mobile telephone subscribers in India increased from 77,000 in 1995 to 49 million by December 2004. The survey has predicted that at least 110 million new mobile phone subscribers will be added in India during the next three years.[9] Rural and Urban predicted Teledensity[8,9] has been shown in Table 1. It shows exponential growth in use of telephones and this in turn results in more usage of internet, as in India most of the internet access is via telephone lines.

Table 1. Teledensity

Year	Teledensity		
	Rural	Urban	Total
1996	0.3	4	1.3
2000	0.7	8.2	2.9
Dec 2004	1.8	19.7	8.9

The broadband policy 2004 sets ambitious target of three million broadband subscribers by the year 2005. The position of internet, broadband, fixed and mobile telephone services in India is shown in Table 2 at the start of year 2005.[9,10]

Table 2. Status of internet, broadband, fixed and mobile telephone services

No. of fixed telephone lines (per 100 persons)	4.5
No. of mobile phones (per 100 persons)	4.5
No. of internet connections (per 100 persons)	0.8
No. of broadband connections (per 100 persons)	0.019

Department of Telecommunication aims to achieve the target of internet subscribers from

current 3-4 million to around 90-100 million by 2020. Table 3 shows the targets in years to come. [10,11]

India is a participant in this global process. There is tremendous appetite to absorb new technology. The middle urbanites and rural class will increase the use of mobile phones, internet and new communication technologies. As the past trend guides, it is expected that by 2010 India would complete transition into digital switching and transmission, VoIP (voice over internet protocol), broadband and 3G/4G systems. Mobile telecommunications and the internet are going to set the contours of further technological progress over the next five years. The recent convergence of voice and data transmissions, global satellite systems, mobile handsets and calling cards have overcome the technological barriers of distance, topography and remoteness.

All this study boasts the basic concept of this proposal that the use of e-learning will increase multifold in coming years. More and more educational institutes are switching to online education and distance education via internet. Some major issues in India are:

(a) Mindset of people

(b) The initial costs are pretty high. This may discourage a lot of organisations especially today when cash reserves are low

(c) Good content, designed with sound instructional design, is not easy to come by. Early adopters have had bad experiences with content

(d) To save costs, organisations compromise on content (without necessarily realising it). Good instructional design requires good content providers. One-time costs are heavy in technology. Then, for each new program, there would be content cost. However, the delivery costs are negligible.

It is through academic and government that e-learning in education can reach the masses. In India, there would be a need for vernacular content over a period of time. Rural India could benefit by establishing e-learning centres with content in local languages. The current educational programs designed for awareness among adults on a variety of social issues can reach every individual for far lesser cost. The students who do not have the access to expertise and good educational program will not have the same benefits that an urban student has access to through e-learning. Our learners will be able to cross cultural boundaries by collaborating with learners from a variety of cultures.

Some of the issues that must be taken into account while preparing course material or starting a new course are:

□ Participating students may be extra conscious in e-learning phase

□ Result may vary if it becomes compulsory for students to complete the course only via e-learning phase

□ Quality of course material may also change results

□ Teaching method may also bring an impact

□ Some researchers have suggested that mature and motivated students are better performers in e-learning, while less motivated tend to suffer. [3]

Also personality characteristics[4] may have an effect on learner. These characteristics were found as stability, openness, conscientiousness, agreeableness and

Table 3. Internet and broadband user's targets

Year ending	Broadband subscribers target	Penetration	Internet Subscribers target	Penetration
2005	3 million	0.3 %	6 million	0.6%
2010	20 million	1.7 %	40 million	3.4%
2020	32-40 million	4-5%	90 million	10.0%

extroversion as observed by Mount and Barrick[5].

Effective e-learning goes beyond publishing and distribution to offering online learning activities as integral course components. Developers and instructors familiar with instructional design principles for online learning take advantage of the power of networked computers to engage students by providing them with opportunities to interact with peers, instructors, experts, and rich online resources. Students participate in collaborative learning and knowledge building and, throughout the learning experience, the instructor and students are supported with pedagogical and technical support.

4. CONCLUSION

Today, e-learning is in its early stage and there are many issues still requiring clarification and investigation. It is not the power of e-learning that brought about this achievement, but the methodology employed. E-learning is a medium, not a methodology. Inspite of all the efforts and electronic gadgets and gizmos, still e-learning cannot replace class room teaching, though definitely it can improve the learning standards and improvise standards of context of lectures.

Not every student can find e-learning suited to his or her style. Also e-learning cannot create actual campus life and environment that students enjoy in the class rooms. E-learning requires more maturity and self discipline which leads to more dropouts than class room teaching. The focus should be on using the appropriate format for the appropriate learning objectives, circumstances, budgets, etc. As an example, if a large company wants to train 1000 sales people who are spread all over India - costs and conditions might lead to a conclusion that e-learning is more useful.

E-learning and classroom learning are not mutually exclusive. In many situations classroom learning can be enhanced by adding e-learning as a discussion thread to continue dialogue after the session, or a series of online resources to prepare students for classroom learning.

A few web links offering e-learning are:

❑ Phoenix On line, Univ. of Massachusetts
  Peeas.ecs.uman.edu

❑ Sun-system in association with ACM, Univ. of Michigan
  dln.engin.umd.umich.edu,

❑ NIIT Education
  Geteducated.com

❑ Virtual Technical Univ.
  http://elearning.vtu.ac.in/courses.htm

❑ British Council
  http://www.britishcouncil.org/india/india-education-onlinecourses-2

❑ Global Virtual University
  http://www.carl-abrc.ca/projects/e_learning/virtual_university-e.html

❑ www.gurukulonline.com/press

❑ www.w3varsity.com

❑ www.ncst.ernet.in/vidyakash

❑ www.e-aim.com/multimedia

❑ www.netvarsity.com

❑ www.indiainfoline.com/nevi

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Contributors:	**Dr Ram Kumar,** Reader, Department of Computer Science and Applications, Kurukshetra University. e-mail: rkc.kuk@gmail.com
	Sh Ashwani Kush, Lecturer in Computers Science, University College, Kurukshetra University. e-mail: akush20@rediffmail.com